No. 7900056

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

SeedTec International, Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *seventeen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

SAFFLOWER

'S-742'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office *to be affixed at the City of* Washington *this* 11th *day of* September *in the year of our Lord one thousand nine hundred and* eighty.

Attest:

Kenneth A. Evans
Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

John R Block
Secretary of Agriculture

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, POULTRY, GRAIN & SEED DIVISION

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

INSTRUCTIONS: *See Reverse.*

FORM APPROVED
OMB NO. 40-R3822

No certificate for plant variety protection may be issued unless a completed application form has been received (5 U.S.C. 553).

1a. TEMPORARY DESIGNATION OF VARIETY	1b. VARIETY NAME	FOR OFFICIAL USE ONLY
742-5-14^{C}-B-B	S-742	PV NUMBER 7900056
2. KIND NAME: Safflower	3. GENUS AND SPECIES NAME: Carthamus tinctorius L.	FILING DATE 3-5-79 / TIME 9:00 A.M. P.M.
4. FAMILY NAME (BOTANICAL): Compositae (asteraceae)	5. DATE OF DETERMINATION: October 1977	FEE RECEIVED $ 500.00 $ 250.00 / DATE 3-5-79 6/9/80

6. NAME OF APPLICANT(S)	7. ADDRESS *(Street and No. or R.F.D. No., City, State, and ZIP Code)*	8. TELEPHONE AREA CODE AND NUMBER
Pacific Oilseeds Incorporated	P.O. Box 1008 Woodland, CA 95695	(916) 662-8623

9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: *(Corporation, partnership, association, etc.)*	10. IF INCORPORATED, GIVE STATE AND DATE OF INCORPORATION	11. DATE OF INCORPORATION
Corporation	California 1954	1954

12. NAME AND MAILING ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS:

John W. Talbott, P.O. Box 1008, Woodland, CA 95695

13. **CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED:**

- [X] 13A. Exhibit A, Origin and Breeding History of the Variety *(See Section 52 of the Plant Variety Protection Act.)*
- [X] 13B. Exhibit B, Novelty Statement.
- [X] 13C. Exhibit C, Objective Description of the Variety *(Request form from Plant Variety Protection Office.)*
- [ ] 13D. Exhibit D, Additional Description of the Variety.

14a. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? *(See Section 83(a). (If "Yes," answer 14B and 14C below.)* [ ] YES [X] NO

14b. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?	14c. IF "YES," TO 14B, HOW MANY GENERATIONS OF PRODUCTION BEYOND BREEDER SEED?
[ ] YES [ ] NO	[ ] FOUNDATION [ ] REGISTERED [ ] CERTIFIED

15a. DID THE APPLICANT(S) FILE FOR PROTECTION OF THIS VARIETY IN OTHER COUNTRIES? [ ] YES [X] NO *(If "Yes," give name of countries and dates.)*

15b. HAVE RIGHTS BEEN GRANTED THIS VARIETY IN OTHER COUNTRIES? [ ] YES [ ] NO *(If "Yes," give name of countries and dates.)*

16. DOES THE APPLICANT(S) AGREE TO THE PUBLICATION OF HIS/HER (THEIR) NAME(S) AND ADDRESS IN THE OFFICIAL JOURNAL? [X] YES [ ] NO

17. The applicant(s) declare(s) that a viable sample of basic seed of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

February 8, 1979
(DATE)

John W. Talbott
(SIGNATURE OF APPLICANT)
John W. Talbott, Executive Vice President

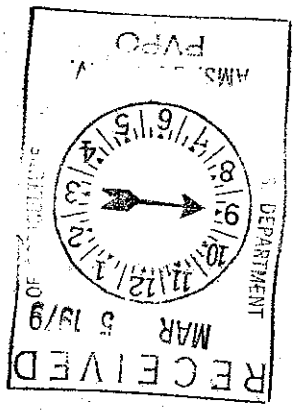
(DATE)

(SIGNATURE OF APPLICANT)

FORM GR-470 (1-78)

INSTRUCTIONS

GENERAL: Send an original copy of the application and exhibits, at least 2,500 viable seeds, and $500 fee ($250 filing fee and $250 examination fee) to U.S. Dept. of Agriculture, Agricultural Marketing Service, Livestock, Poultry, Grain and Seed Division, Plant Variety Protection Office, National Agricultural Library Building, Beltsville, Maryland 20705. (See section 180.175 of the Regulations and Rules of Practice.) Retain one copy for your files. All items on the face of the form are self-explanatory unless noted below.



ITEM

5 Give the date the applicant determined that he had a new variety based on (1) the definition in section 41(a) of the Act and (2) the date a decision was made to increase the seed.

13a Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method; (2) the details of subsequent stages of selection and multiplication; (3) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified and (4) evidence of uniformity and stability.

13b Give a summary statement of the variety's novelty. Clearly state how this novel variety may be distinguished from all other varieties in the same crop. If the new variety most closely resembles one or a group of related varieties: (1) identify these varieties and state all differences objectively; (2) attach statistical data for characters expressed numerically and demonstrate that these differences are significant; and (3) submit, if helpful, seed and plant specimens or photographs of seed and plant comparisons clearly indicating novelty.

13c Fill in the Exhibit C, Objective Description form, for all characteristics for which you have adequate data.

13d Describe any additional characteristics that are not described, or whose description cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the description of characteristics that are difficult to describe, such as, plant habit, plant color, disease resistance, etc.

14a If "YES" is specified (seed of this variety be sold by variety name only as a class of certified seed) the applicant may NOT reverse his affirmative decision after the variety has either been sold and so labeled, his decision published, or the certificate has been issued. However, if the applicant specified "NO," he may change his choice. (See section 180.16 of the Regulations and Rules of Practice.)

15a See section 42 of the Plant Variety Protection Act and section 180.7 of the Regulations and Rules of Practice.

7900056

EXHIBIT A: ORIGIN AND BREEDING HISTORY S-742.

S-742 was developed by pedigree selection from the following multiple cross completed in 1970:

$$\left[\left[((U1421 \times Gila) \times POI\text{-}261\ bc^1) \times UC1\right] \times \left[(POI\text{-}261 \times F64\text{-}1\text{-}47)\right]\right] \times PCOY$$

U1421--a rust resistant line acquired in 1960 from Utah State University, Logan, Utah.

POI-261--a high oil striped pericarp breeding line developed by Pacific Oilseeds Incorporated.

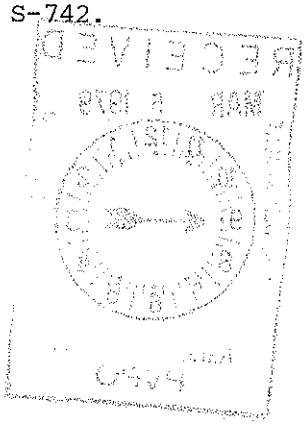
F64-1-47--a fusarium resistant selection acquired in 1965 from C. A. Thomas USDA Plant Pathologist. This selection by Dr. Thomas was from the cross: (N6 x Gila bc^1) x POI-414. POI-414 is a high yielding breeding line developed by Pacific Oilseeds Incorporated.

PCOY--a rust resistant breeding line released by Mr. A. L. Urie, USDA Agronomist, Utah State University.

In 1972, F_2 segregants of the above cross were evaluated for general appearance and rust resistance. Rust resistant F_3 progeny were grown in the Yolo bypass near Woodland, California. Row number 742 was rated as 90% resistant to fusarium wilt. Selfed seed of rust and fusarium resistant selection 742-5 was grown in 1974 again in the Yolo bypass. Rust was rated as resistant and fusarium incidence was only three percent. The entire row was caged and selfed seed from plant 742-5-14^C having 46.5% oil measured by standardized NMR analysis was advanced to the F_6 generation. Selfed seed from 742-5-14^C was evaluated for resistance to verticillium wilt during 1975-1976 by Dr. C. A. Thomas, USDA Plant Pathologist. Selection 742-5-14^C was rated 100% resistant to the cotton defoliant isolant of verticillium. This compared to 100% resistance in the USDA line VFR and 100% susceptibility in the variety 'Gila'.

In 1976 742-5-14^C was grown in rows and appeared uniformly homozygous. The line was bulked and entered in POI yield trials in 1977. Results from 1977 yield trials warranted increase of breeders seed in Mexico in 1977-1978. Seed returned from increase in Mexico was planted in 1978 in the Sacramento Valley and increased in isolation for commercial seed production in 1979. This line has been tentatively named S-742.

Permanent name by phone call 4/28/80



TH:tb
2/8/79

PACIFIC OILSEEDS INCORPORATED

SAFFLOWER • HYBRID SORGHUM • HYBRID SUNFLOWER

916 - 662-8623
CABLE ADDRESS: POISEEDS

TELEX 171369
P. O. BOX 1008
WOODLAND, CA 95695

August 24, 1979

Mr. Joseph T. Higgins
Examiner, Plant Variety
Protection Office
USDA
National Agricultural Library Bldg.
Bettsville, MD 20705

Dear Mr. Higgins:

I have enclosed supportive data and descriptions on safflower varieties S-541 and S-742 (application numbers 7900056 and 7900057). The differences between presently protected varieties (S-317 and S-400), standard varieties, S-541 and S-742, are summarized in table form and evidenced by accompanying photographs.

In your letter of April, 1979, you asked about the reddish-orange dry down color of S-742. This is a darker orange than that of "Gila" and is unique. To my knowledge, no other varieties on the market have this shade of dry down floret. I believe the color shows up somewhat on the photographs.

With respect to determining the stability of the S-541 and S-742 genotypes, this was done by bulking advanced generation plants that were identical in flower colors, height, plant morphology, pericarp type, and oil type. No off-type plants were noted in either seed increase nor have off-type plants been noted in yield trials conducted throughout California.

Also, to the best of my knowledge, the variety "Carmex" is tested and sold only under that designation.

I believe the data presented are as accurate as possible. Of course, heights and oil contents change somewhat according to planting dates and available moisture, but, in general, differences remain relative and are apparent.

I hope you find our application is in order. Many thanks for your patience as we were awaiting the collection of materials.

Sincerely,

PACIFIC OILSEEDS INCORPORATED

Tom Heaton

Thomas C. Heaton
Research Director

TCH/cbs

enclosures

3

PACIFIC OILSEEDS INCORPORATED

EXHIBIT B: NOVELTY STATEMENT ON S-742.

Safflower variety S-742 is a linoleic acid oil type cultivar. Variety S-742 is Pacific Oilseeds Incorporated's first triple resistant safflower variety. S-742 has shown good field resistance to the prevalent race 2 of Fusarium oxysporum and has performed well in areas where the new race 4 is suspected to occur. Resistance to the severe strain of verticillium has been demonstrated in USDA seedling screening tests. Incorporation of the rust resistance gene PCOY (a gene originally transferred from the wild species Carthamus oxyacantha) makes S-742 resistant to all strains of safflower rust, Puccinia cartami. However, it appears that a new strain of rust in localized areas may be developing. S-742 is not immune to this strain, although the strain has not become important. If this is a new strain, resistance has not yet been identified in either public or private materials.

S-742 is distinguished from other varieties by its large head diameter, its abundance of lanceolate bracts, its reddish-orange dry down color, and its triple disease resistance. S-742 most closely resembles the related varieties "Gila" and "Frio" in plant habit and branching pattern, but is easily distinguished by its darker reddish-orange dry down, higher oil content (striped pericarp), larger head diameter, and numerous head bracts. S-742 is completely unique from standard safflower varieties. Table 6 compares and contrasts S-742 with seven other common safflower varieties.

Yield results for 1976 through 1978 are presented in Tables 1 through 3. S-742 was not entered in USDA trials due to a limit on the number of entries that could be made. It can be seen that S-742 is an improvement over the two main high linoleic acid oil type commercial varieties in California, S-208 and S-400. S-742 combines high oil content with competitive yields and excellent disease resistance. We expect S-742 to be popular in areas where rust and wilt diseases are detrimental to safflower production.

TCH/cbs
8/23/79

TABLE 6: COMPARISON OF SAFFLOWER VARIETAL CHARACTERISTICS

VARIETY		PLANT [a] HEIGHT (CM)	NUMBER [b] BRACTS	LENGTH BRACTS (CM)	½ LENGTH BRACT WIDTH (CM)	HEAD DIAMETER (CM)	NUMBER MAIN BRANCHES	FLOWER COLOR (BLOOM)	FLOWER COLOR (DRY)	OIL TYPE	PERICARP TYPE	OIL CONTENT [c] (%)	RUST [d]	FUSARIUM WILT (RACE 2)	VERTICILLIUM WILT	FIRST FLOWER (DAYS)
S-541	$\bar{x}$	79	20	2.8	0.9	2.6	6	yellow	orange	linoleic	gray striped	46.7	S	R	T	91
	δ	8	1	0.1	0.1	0.2	1									
S-742	$\bar{x}$	79	31	3.5	1.0	3.2	5	yellow	reddish orange	linoleic	purple striped	47.1	R	R	R	90
	δ	2	2	0.4	0.1	0.2	1									
Gila	$\bar{x}$	74	18	3.0	1.2	2.6	5	yellow	orange	linoleic	white	40.1	S	S	S	85
	δ	2	2	0.1	0.1	0.2	1									
US-10	$\bar{x}$	79	17	3.4	1.1	2.4	5	yellow	yellow	linoleic	white	41.2	S	S	S	87
	δ	2	2	0.2	0.1	0.1	1									
Frio	$\bar{x}$	81	20	3.0	1.0	2.7	6	yellow	orange	linoleic	white	42.5	S	S	S	87
	δ	2	2	0.3	0.1	0.2	1									
S-208	$\bar{x}$	81	19	3.0	0.9	2.5	7	yellow	orange	linoleic	white	43.6	S	S	T	90
	δ	2	1	0.2	0.1	0.1	1									
S-400	$\bar{x}$	81	25	3.1	1.0	2.6	6	yellow	yellow	linoleic	gray striped	43.6	S	R	T	92
	δ	2	3	0.3	0.2	0.2	1									
S-317	$\bar{x}$	81	24	2.9	0.8	2.6	5	yellow	yellow	oleic	gray striped	44.1	S	R	T	91
	δ	5	2	0.2	0.1	0.1	1									

[a] $\bar{x}$ = average of 20 observations; δ = standard deviation.

[b] all bract and head measurements were taken on primary heads.

[c] oil contents from the same location/same year.

[d] T = tolerant; R = resistant; S = susceptible.

TH/cs

EXHIBIT B: Yield Data on S-742 (Percent of oil by NMR)

Table 1. Advanced Safflower 1976-2 River Garden Farms, California

Entry	Yield lb/A	Oil %	Test wt lb/bu	Oil/A	Days to 100% bloom	Height cm
742-5-14^{C}-B	3621	48.3	41.1	1749	80	68
S-400	3588	44.4	42.2	1593	79	68
S-296	3416	43.3	42.4	1479	79	71
S-317	3204	42.0	42.9	1346	78	81
S-208	3058	43.1	43.0	1318	76	76
Erhol	2788	46.7	43.9	1302	77	71

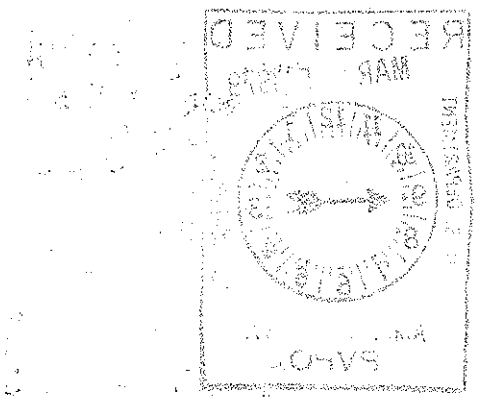
Table 2. Advanced Safflower 1977-8 Clarksburg, California

742-5-14^{C}-B-B	4018	47.2	41.9	1896	98	114
S-208	3660	44.4	43.2	1625	96	113
S-400	3463	45.2	41.9	1565	98	122
S-296	3399	44.0	42.4	1495	98	122

Table 3. Advanced Safflower 1978-8 Clarksburg, California

S-317	4178	43.4	41.5	1813	95	114
US-10	3453	39.1	43.0	1350	89	107
S-541	3342	46.2	41.9	1544	92	114
S-208	3233	42.8	41.7	1384	89	107
742-5-14^{C}-B-B	3209	46.0	40.1	1476	91	107
S-400	3111	43.6	41.0	1357	92	107
S-296	3083	42.2	40.8	1301	95	114
Gila	3069	41.1	41.3	1261	89	91
Frio	2938	42.7	40.0	1255	89	107

TH:tb
2/8/79



7900056

Table 4. UNDECORTICATED SEED ANALYSIS*

Variety	Hull %	Protein %	Oil %	WIJS Iodine Value
S-208	34.6	12.7	41.7	145.8
S-400	32.1	13.0	43.4	143.8
S-541	30.1	14.9	44.2	141.9
S-742	31.8	13.1	45.7	141.8

FATTY ACID DISTRIBUTION ANALYSIS*

Variety	Carbon No.	14	16	16:1	18	18:1	18:2	20	20:1	22
S-208	%	.1	6.6	.1	2.3	11.1	79.2	.2	.2	.2
S-400		.1	6.8	.1	3.0	12.0	77.5	.2	.2	.2
S-541		.1	7.2	.1	2.8	14.0	75.0	.4	.3	.2
S-742		.1	7.4	.1	3.2	12.6	75.8	.4	.2	.2

Variety	Acids Saturated %	Acids Unsaturated %	Oleic Acid %	Linoleic* Acid %
S-208	9.4	90.6	11.1	79.2
S-400	10.3	89.7	12.0	77.5
S-541	10.7	89.3	14.0	75.0
S-742	11.3	88.7	12.6	75.8

*Samples from 1978 Yield trial at River Garden Farms. Analyses done by PVO/Richmond Mr. John Wood, December 1978.

1/4/79
tb

FORM GR-470-22
(2-15-73)

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
GRAIN DIVISION
HYATTSVILLE, MARYLAND 20782

FORM APPROVED. OMB NO. 40-R3712

EXHIBIT C
(Safflower)

OBJECTIVE DESCRIPTION OF VARIETY

SAFFLOWER (*CARTHAMUS TINCTORIUS*)

INSTRUCTIONS: *See Reverse.*

NAME OF APPLICANT(S)
PACIFIC OILSEEDS INCORPORATED

ADDRESS (*Street and No. or R.F.D. No., City, State, and ZIP Code*)
P.O. Box 1008
Woodland, CA 95695

FOR OFFICIAL USE ONLY

PVPO NUMBER
7900056

VARIETY NAME OR TEMPORARY DESIGNATION
S-742

Place the appropriate number that describes the varietal character of this variety in the boxes below.
Place a zero in first box (e.g. [0][8][9] or [0][9]) when number is either 99 or less or 9 or less.

1. MATURITY (From Emergence):

[1] Location: 1 = CALIFORNIA & ARIZONA 2 = MIDWEST

[1][2][0] NO. OF DAYS TO MATURITY

[0][0] NO. OF DAYS EARLIER THAN .... [0]
[0][2] NO. OF DAYS LATER THAN ..... [3]
1 = GILA 2 = FRIO 3 = US-10

[2] Maturity Class: 1 = EARLY (less than 110 days) 2 = MEDIUM EARLY (110 to 120 days)
3 = MEDIUM LATE (121 to 130 days) 4 = LATE (more than 130 days)

2. PLANT HEIGHT AT MATURITY:

[1][0][7] CM. HEIGHT

[0][0] CM. SHORTER THAN ..... [2]
[1][5] CM. TALLER THAN ..... [1]
1 = GILA 2 = FRIO 3 = US-10

3. FLOWER COLOR:

[1][1] Type:

	Fresh Flower	Wilted Flower
01 =	WHITE	GREYISH-WHITE
02 =	LIGHT YELLOW	GREYISH-WHITE
03 =	LIGHT-ORANGE BASE	ORANGE BASE
04 =	YELLOW	YELLOW (US-10)
05 =	YELLOW	LIGHT ORANGE BASE
06 =	YELLOW	ORANGE (Gila)
07 =	ORANGE	LIGHT RED
08 =	REDDISH ORANGE	DEEP RED
09 =	YELLOW BASE & TIPS OF LOBES ORANGE	ORANGE
10 =	PALE-YELLOW	PALE-YELLOW
11 =	OTHER (Specify) yellow--red/orange	

4. SPINES ON INVOLUCRAL BRACTS:

[2] 1 = ABSENT 2 = PRESENT

[3] Location: 1 = TIP ONLY 2 = TIP & FEW BASAL 3 = TIP & ALONG MARGINS 4 = MARGINS ONLY

[0][3] MM. LENGTH (A) [1][2] NUMBER (B) [0][3][6] SPINE INDEX (A x B)

[2] Spine Index Class: 1 = 0—20 2 = 21—40 3 = 41—60 4 = 61—80 5 = 81—100 6 = 101—120

5. HEADS (For Plant Populations of 593,000 Plants/Hectare):

[0][2][5] MM. DIAMETER (Primary Heads)

[1] Seed Shattering Percentage: 1 = 1—10 2 = 11—30 3 = OVER 30

6. SEED:

[6] Color: 1 = WHITE 2 = CREAM 3 = GRAY 4 = GRAY WITH WHITE TIP
5 = GRAY STRIPED 6 = PURPLE STRIPED 7 = BROWN STRIPED 8 = BROWN BLOTCH
9 = OTHER (Specify) _____

[3] Hull Type: 1 = NORMAL 2 = THIN-HULLED 3 = STRIPED 4 = REDUCED

[0][3] MM. WIDTH [0][6] MM. LENGTH [0][2][6] GRAMS PER 1000 SEED

7. SEEDLING VIGOR: (6 weeks after seeding at 2.5 cm. depth with ample moisture for germination; mean of 20 plants)

[1][2] NUMBER OF NODES [0][1][2] CM. TALL (Soil Surface to Tip)

7900056 S-742

FORM GR-470-22 (REVERSE)

8. COLD RESISTANCE AT DIFFERENT STAGES AND TEMPERATURES:

3	Rosette:	1 = −10° C. 2 = −5° C. 3 = 0° C. 4 = 5° C. 5 = 10° C.
4	Bolting:	
5	Flowering:	

9. DISEASE: (0 = Not Tested; 1 = Susceptible; 2 = Resistant)

2	RUST (Specify races) PCOY resistant	0	PHYTOPHTHORA ROOT ROT	0	PYTHIUM ROOT ROT
2	FUSARIUM WILT	2	VERTICILLIUM WILT	0	CERCOSPORA LEAF SPOT
0	SCLEROTINA STEM ROT	0	ALTERNARIA LEAF SPOT	0	ALTERNARIA BUD ROT
0	BOTRYTIS HEAD ROT	0	RHIZOCTONIA BLIGHT	0	BACTERIAL BLIGHT
0	CUCUMBER MOSAIC	0	PHYLLODY	0	OTHER (Specify)

10. INSECT AND NEMATODE: (0 = Not Tested; 1 = Susceptible; 2 = Resistant)

0	GREEN PEACH APHID	0	LEAF-CURL PLUM APHID	0	BLACK BEAN APHID
0	WESTERN FLOWER THRIPS	0	LYGUS BUGS	0	STINKBUGS
0	ROOT-KNOT NEMATODE	0	OTHER (Specify)		

11. INDICATE A VARIETY THAT MOST CLOSELY RESEMBLES THAT SUBMITTED:

CHARACTER	VARIETY	CHARACTER	VARIETY
Frost Hardiness	S-400	Lodging	S-317
Seed Shattering	FR10	No. of Branches	FR10
Seedling Vigor	FR10		

12. GIVE THE FOLLOWING DATA FOR SUBMITTED AND A SIMILAR VARIETY *:

VARIETY	HULL (%)	PROTEIN (%)	OIL (%)	IODINE (%)	ACIDS SATURATED (%)	ACIDS UNSATURATED	
						OLEIC (%)	LINOLEIC (%)
Submitted	31.8	13.1	45.7	141.8	11.3	12.6	75.8
Similar	32.1	13.0	43.4	143.8	10.3	12.0	77.5
Name of Similar Variety	S-400	→ DOH 4/15/80					

**Hull, protein, and oil percentages expressed for whole undecorticated seed; acids expressed as percentages of oil.*

REFERENCES

1. Knowles, P.F. & M.D. Miller. 1965. Safflower. Cal. Ag. Exp. Sta. Circ. 532. 51 p.
2. Weiss, E.A. 1971. Castor, Sesame, and Safflower. Barnes & Noble, Inc. N.Y. 901 p.

Nickerson's or any recognized color fan may be used to determine plant colors of described variety.

COMMENTS: